

## Claims

1. A protein having a covalently bonded puromycin tag, said tag being positioned at the C-terminal end of said protein.

2. The protein of claim 1, wherein said tag is a small molecule.

5 3. The protein of claim 2, wherein said small molecule is biotin.

4. The protein of claim 1, wherein said tag is a detectable label.

5. The protein of claim 4, wherein said detectable label is fluorescein, rhodamine, or BODIPY, or derivatives thereof.

6. The protein of claim 1, wherein said tag is a functional group.

10 7. The protein of claim 1, wherein said protein has a first functional group and said tag is a second functional group and wherein said first functional group has a reactivity orthogonal to the reactivity of said second functional group.

8. The protein of claim 1, wherein said tag is a tether for attachment to a solid support.

15 9. The protein of claim 8, wherein said solid support is a column, bead, or chip.

10. The protein of claim 1, wherein said tag is one member of a specific binding pair.

11. The protein of claim 10, wherein said tag is a phenyl diboronic acid derivative.

5 12. The protein of claim 1, wherein said puromycin tag further comprises a nucleotide sequence positioned between said tag and said puromycin.

13. The protein of claim 12, wherein said nucleotide sequence is between about 1-200 nucleotides in length.

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10 14. A method for C-terminal protein tagging, comprising  
(a) providing a nucleic acid sequence encoding said protein;  
(b) translating said sequence under conditions in which translation stalls at the 3' end of said sequence, forming a stalled translation complex; and  
(c) contacting said stalled translation complex with a puromycin tag under conditions in which said puromycin tag is covalently bonded to the C-terminus of said protein.  
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15. The method of claim 14, wherein said tag is attached to the 5'-hydroxy group of said puromycin.

16. The method of claim 15, wherein said tag is attached to the 5'-hydroxy group of said puromycin through a phosphate group.

17. The method of claim 14, wherein said nucleic acid sequence encoding said protein contains no stop codons.

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18. The method of claim 14, wherein said translation step is carried out in the substantial absence of at least one translation release factor.

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19. The method of claim 14, wherein the 3'-end of said nucleic acid sequence encoding said protein is covalently linked to a DNA oligomer.

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20. The method of claim 14, wherein said tag is a small molecule.

21. The method of claim 20, wherein said small molecule is biotin.

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22. The method of claim 14, wherein said tag is a detectable label.

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23. The method of claim 22, wherein said detectable label is fluorescein, rhodamine, or BODIPY, or a derivative thereof.

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24. The method of claim 14, wherein said tag is a functional group.

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25. The method of claim 14, wherein said protein has a first functional group and said tag is a second functional group and wherein said first functional group has a reactivity orthogonal to the reactivity of said second functional group.

26. The method of claim 14, wherein said tag is a tether for attachment

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